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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,742	08/08/2001	Bret Walczynski	2970.92USU1	2932

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EXAMINER

THORNTON, YVETTE C

ART UNIT	PAPER NUMBER
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1752

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DATE MAILED: 04/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/924,742

Applicant(s)

WALCZYNSKI, BRET

Examiner

Yvette C. Thornton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4-5</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is written in reference to application number 09/924742 filed on August 8, 2001 and published as US 2002/0048715 A on April 25, 2002.

Information Disclosure Statement

1. The Information Disclosure Statements filed on April 8, 2002 and April 22, 2002 have been entered and fully considered.

Claim Objections

2. Claims 5 and 11 are objected to because of the following informalities: the said claims fail to have a period at the end. Appropriate correction is required.

Claim Interpretations

3. Claim 1, as written, allows for a structure wherein the substrate is between the adhesive sheet and the photoresist sheet. However, the broadest interpretation of the claim also encompasses a structure wherein the photoresist sheet and adhesive sheet are on the same side of substrate. Claim 7 allows for a structure wherein the photoresist layer or the adhesive layer is adjacent to the substrate. The broadest interpretations of the claims have been applied.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 5-8, and 11-12 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by VanIseghem (US 4,764,449 A). VanIseghem teaches a sandblast photoresist laminate article comprising an adhesive layer, a membrane support layer and a resist layer (c. 2, l. 1-7). The said articles are typically made by coating the membrane support with a resist composition. In one aspect the resist composition can be coated upon the membrane support using well known coating techniques. The adhesive layer can be coated on the opposite side of the membrane layer from the resist composition. Such coating steps can be done in tandem or simultaneously in production (c. 8, l. 60-68). Alternatively, the resist layer can be coated on the support membrane and the adhesive composition can be coated upon a film of resist composition, which rests upon the membrane support layer. A further alternative method of manufacturing the photoresist laminate comprises coating a support with a photoresist material to form a film of the resist on the support, separately coating a release liner sheet with a pressure sensitive adhesive composition to form a film of the adhesive on the liner, and contacting the uncoated side of the membrane support with the adhesive composition to form a photoresist laminate comprising a resist layer, a support membrane layer, an adhesive layer and the removable release liner (c. 9, l. 1-16). Van-Iseghem teaches that the adhesive layer can be water activated, pressure sensitive, heat activated or other adhesive form. The adhesive layer is preferably a pressure sensitive adhesive. In practice pressure sensitive adhesives commonly are used in conjunction with a pressure sensitive adhesive release liner comprising a backing material such as paper, textile, plastic film or metal foil. The said adhesives typically comprise a polymeric composition in combination with a tackifier and an extender composition. Suitable base polymers include rubbers,

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styrene-elastomer-styrene block copolymers such KRATON and synthetic polymers such as vinyl acetate and acrylate polymers (c. 8, l. 29-59). Figure 1 shows a laminate structure wherein the support is sandwiched between the resist layer and the adhesive layer. Figure 2 shows a structure wherein the resist layer is sandwiched between the support and the adhesive layer. It is the examiner's position that a laminate of figure 1 would meet the limitations of instant claim 1 wherein a laminate of figure 2 would meet the limitations of instant both claims 1 and 7.

Example I exemplifies a process wherein an aqueous photoresist composition is coated onto a polyethylene terephthalate support membrane. The resist composition was dried and the uncoated support is brought into contact with a release liner having a coating of polyvinyl acetate based hot melt pressure sensitive adhesive. It is the examiner's position that the taught release liner constitutes a peelable carrier backing as presented in instant claims 5-6 and 11-12.

6. Claims 1-2, 5-6, 7-8 and 11-12 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Schupp et al. (US 4,596,759 A). Schupp teaches a novel multi-stratum photosensitive resist layer comprising an upper stratum (U) and a lower stratum (LS). Preferably the said multi-stratum resist layers are applied in the form of dry film resist. The upper stratum can first be applied onto a temporary base (T) from solution, and the lower stratum can be produced in a separate step by casting an appropriate solution onto a cover sheet (C). The free surfaces of the upper and lower strata of the said laminate elements are then bonded to one another using pressure and if necessary, heat (c. 12, l. 50-67). It is also possible to first apply the upper stratum onto the temporary base by conventional application

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techniques such as casting, pressing-on or lamination, and then to apply the lower stratum onto the said upper stratum. (c. 12, l. 68-c. 13, l. 9). Schupp teaches that the upper stratum consists of a positive working photosensitive resist material (c. 5, l. 31-c. 9, l. 31). The composition of the lower stratum is chosen so that it exhibits good adhesion to the substrate and to the upper stratum. When a dry film resist is desired, the lower stratum should exhibit only slight adhesion to the cover sheet, which makes it possible to peel off the cover sheet from the lower stratum (c. 9, l. 32-c. 10, l. 10). Example 1 exemplifies a solution (a) being applied to a polyethylene terephthalate (PET) film and dried to form the upper stratum of the resist layer. A second solution (b) is applied to a second polyethylene terephthalate film to form the lower stratum. The lower layer is then laminated with a copper plated substrate and the second PET film was peeled off. The layer upper stratum was then laminated on the formed element. The formed element thus has a structure comprising the first PET film, an upper stratum, a lower stratum and a copper plated substrate (c. 16, l. 1-55). It is the examiner's position that the exemplified invention meets the limitations of the instant claims wherein the taught upper stratum is the claimed resist layer; the taught lower stratum is the claimed pressure sensitive adhesive layer; and the second PET film meets the limitation of a carrier backing which can be peeled from the adhesive material.

7. Claims 1-2 and 4-6 rejected under 35 U.S.C. 102(b) as being clearly anticipated by Etter et al. (US 4,115,125 A). Etter teaches a photographic element which comprises a paper support, an imaging layer on one surface of the support, a pressure sensitive adhesive layer bonded to the reverse side of the support and an ethylene polymer layer peelably adhered to

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the adhesive layer (c. 3, l. 20-27). Example 1 exemplifies various commercially available pressure sensitive adhesives coated on paper supports and thereafter dried to form an adhesive layer. The said adhesive layers were coated on polyethylene supports. An imaging layer was later provided on the surface of the support opposite the surface bearing the polyethylene layer. Table I shows that the adhesives used include COVINAX 179 and RHOPLEX N-560, which are an n-butylacrylate adhesives. The resulting structure can be stored, exposed and processed to form an image with the polyethylene intact. Thereafter the polyethylene layer can be peeled away to expose the pressure sensitive adhesive surface for mounting (c. 7, l. 34-42; cl. 1). It is the examiner's position that the polyethylene layer constitutes a carrier layer as presented in instant claims 5 and 6.

8. Claims 1-3, 5-9 and 11-12 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Couture et al. (US 5,415,971 A). Couture teaches a photosensitive mask laminate having a photoimageable, pressure sensitive adhesive layer and a photoimageable masking layer (abstract). The laminate also includes a support layer and it can include a removable carrier layer and a release layer (abstract; Fig. 1). The pressure sensitive layer of the laminate preferably comprises a photosensitive component, a binding resin, a tack imparting composition and optionally a photoinitiator or photocrosslinker (c. 3, l. 66-c. 4, l. 6). In negative working systems, the photohardening typically renders the exposed areas insoluble in water. However prior to exposure the adhesive layer is water soluble (c. 3, l. 38-46). Likewise, in a positive working system the adhesive layer would be water insoluble prior to exposure (c. 3, l. 15-42). Couture teaches that negative working systems are preferred (c. 3, l. 28-30). The tack imparting composition maybe a tackifier or a pressure

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sensitive adhesive. Representatives include natural rubbers, styrene-butadiene rubbers, acrylates, and vinyl acetate copolymers (c. 5, l. 3-20). Figure 1 depicts a structure comprising a carrier, a support, photoimageable layer, an adhesive layer and a protective layer. Couture teaches that the carrier layer is strippable from and adjacent to the support layer and a removable protective layer is adjacent to the pressure sensitive layer to render the laminate non-tacky during handling and processing. The said protective layer maybe a release coated film as described for the carrier film. It is the examiner's position that the said protective layer meets the limitations of a carrier, which can be peeled as set forth in instant claims 5-6 and 11-12. It is also the examiner's position that when the taught photoimageable pressure sensitive adhesive layer comprises the preferred negative working system in combination with the taught pressure sensitive adhesive, it meets the limitations of the instant claims wherein the adhesive layer is water soluble.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over VanIseghem (US 4,764,449 A) as applied to claims 1-2, 5-8, and 11-12 above and in further view of Etter (US 4,115,125 A) and Lin (US 5,100,963 A). VanIseghem teaches all the limitations of the instant claims except it fails to teach the use of an adhesive selected from

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the group of instant claims 4 and 10. However, VanIseghem does teach that suitable adhesive polymers include rubbers, styrene-elastomer-styrene block copolymers such KRATON and synthetic polymers such as vinyl acetate and acrylate polymers (c. 8, l. 29-59). One of ordinary skill in the art would have been motivated by the teachings of VanIseghem to use any well known and conventional acrylate polymer in the adhesive layer. It is the examiner's position that the acrylates of instant claims 4 and 10 are well known and conventional pressure sensitive adhesives. This position is supported by the examples of Etter (see Table I), which exemplifies the use of n-butylacrylate adhesive materials such as COVINAX 179 and RHOPLEX N-560. Furthermore, Lin teaches that mixtures comprising alkyl acrylates such as methyl acrylate, butyl acrylate, 2-ethylhexyl acrylate, and ethyl acrylate are conventionally used in manufacturing pressure sensitive adhesives (c. 3, l. 31-c. 4, l. 34). It would have been obvious to one of ordinary skill in the art to use poly (n-butylacrylate), polymethyl acrylate, poly-2-ethylhexyl acrylate, polyethyl acrylate or mixtures thereof as the acrylate polymer of VanIseghem because it is well known and conventional in the art of pressure sensitive adhesives as exemplified by Etter and Lin.

11. Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schupp et al. (US 4,596,759 A) applied to claims 1-2, 5-6, 7-8 and 11-12 above, and further in view of Ugolick et al. (US 5,993,961 A). Schupp teaches all the limitations of the instant claims except it fails to teach the use of an adhesive selected from the group of instant claims 4 and 10. Schupp does however exemplify the lower stratum being made from a composition comprising 70 parts of a copolymer of 35% of o-nitro- α -methylbenzyl acrylate, 1.6% acrylic acid and 63.4% methyl methacrylate (c. 16, l. 25-35). It is the examiner's position that

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methyl methacrylate and methyl acrylate, ethyl acrylate, 2-ethylhexyl acrylate and n-butyl acrylate are well known and conventional variants in the art of pressure sensitive adhesives. This position is supported by the teachings of Ugolick (US '961) which discloses that preferred acrylic based pressure sensitive adhesives comprise polymers of acrylic monomers, polymer of methacrylic monomers and copolymers, blends and mixtures thereof. Examples include methyl acrylate, ethyl acrylate, n-butyl acrylate, 2-ethylhexyl acrylate, and methyl methacrylate (c. 5, l. 26-48). It would have been obvious to one of ordinary skill in the art to substitute methyl acrylate, ethyl acrylate, n-butyl acrylate, or 2-ethylhexyl acrylate for the exemplified methyl methacrylate of Schupp and expect reasonably similar results.

12. Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Couture et al. (US 5,415,971 A) as applied to claims 1-3, 5-9 and 11-12 above and in further view of Etter (US 4,115,125 A) and Lin (US 5,100,963 A). Couture teaches all the limitations of the instant claims except it fails to teach the use of an adhesive selected from the group of instant claims 4 and 10. Couture does however teach that suitable adhesive polymers include rubbers, styrene-butadiene polymers, vinyl acetate and acrylate polymers (c. 5, l. 8-20). One of ordinary skill in the art would have been motivated by the teachings of Couture to use any well known and conventional acrylate polymer in the adhesive layer. It is the examiner's position that the acrylates of instant claims 4 and 10 are well known and conventional pressure sensitive adhesives. This position is supported by the examples of Etter (see Table I), which exemplifies the use of n-butylacrylate adhesive materials such as COVINAX 179 and RHOPLEX N-560. Furthermore, Lin teaches that mixtures comprising alkyl acrylates such as methyl acrylate, butyl acrylate, 2-ethylhexyl acrylate, and ethyl

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acrylate are conventionally used in manufacturing pressure sensitive adhesives (c. 3, l. 31-c. 4, l. 34). It would have been obvious to one of ordinary skill in the art to use poly(n-butylacrylate), polymethyl acrylate, poly-2-ethylhexyl acrylate, polyethyl acrylate or mixtures thereof as the acrylate polymer of Couture because it is well known and conventional in the art of pressure sensitive adhesives as exemplified by Etter and Lin.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

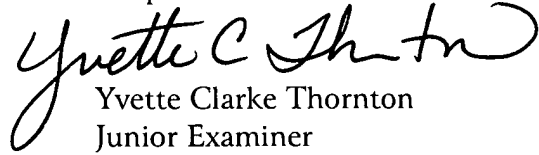
- Suzuki et al. (US 5,427,890 A) which teaches a photosensitive laminate film for use in making the mask comprising a supporting sheet, an image mask protection layer and a water soluble image mask forming composition.
- Schupp et al. (US 4,596,759 A) which teaches a dry film resist containing tow or more photosensitive strata.
- Cyr et al. (US 4,349,620 A) which teaches a solvent developable photoresist film. The examiner notes the Cyr teaches an invention very similar to that of Schupp (US 4596759) discussed above. For the sake of brevity, the rejection over Cyr has not been made. Both references were cited on the International Search Report and IDS filed on April 22, 2002.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvette C. Thornton whose telephone number is 703-305-0589. The examiner can normally be reached on Monday-Thursday 8-6:30.

15. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet C. Baxter can be reached on 703-308-2303. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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16. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1495.

A handwritten signature in black ink, appearing to read "Yvette C Thornton". The signature is fluid and cursive, with the first name "Yvette" being the most prominent part.

Yvette Clarke Thornton
Junior Examiner
Art Unit 1752

yct
April 5, 2003